

# Agricultural Science III

**Levels:** Grades 11-12  
**Units of Credit:** Year (1.0)  
**CIP Code:** 010331  
**Prerequisite:** Agricultural Science II

## **COURSE DESCRIPTION**

Students will be exposed to a wide range of advanced animal and plant science principles, such as genetics, disease, pests, and management practices. Advanced agribusiness principles, as they relate to plant and animal production, will also be covered. Career opportunities and educational preparation are examined. Learning activities are varied, with classroom, laboratory, and field experiences emphasized.

## **CORE STANDARDS, OBJECTIVES, AND INDICATORS**

### **STANDARD**

**010331-01** Students will understand the integral nature of the Agricultural Education Program.

### **OBJECTIVES**

**010331-0101** Students will understand and demonstrate the role of FFA in Agricultural Education.

- Develop short and long range leadership and personal development goals
- Attend an FFA meeting
- Develop leadership qualities for personal goals using communication skills
- Participate in at least one FFA Activity above the chapter level

**010331-0102** Students will understand and demonstrate the role of Supervised Agricultural Experience (SAE) Program in Agricultural Education.

- Identify agricultural interests and/or career goals
- Develop short and long range SAE goals
- Arrange in order steps involved in obtaining a loan from a credit service
- In an approved record book, record all transactions and activities on a SAE
- Determine the overall quality of current SAE and determine how to make it more productive or profitable

### **STANDARD**

**010331-02** Students will demonstrate management practices for specific species of animals.

### **OBJECTIVES**

**010331-0201** Students will analyze equine science and management.

- Students will recognize the importance of the equine industry.
- Students will evaluate and select horses depending on intended use.
- Students will determine the nutritional requirements of horses.
- Students will explain the methods of maintaining horse health and soundness.
- Students will demonstrate methods of handling horses safely.

- 010331-0202 Students will analyze poultry science and management.
- Students will recognize the importance of the poultry industry.
  - Students will compare and contrast the different types of poultry: chickens, turkeys, ducks, and captive game birds.
  - Students will determine nutritional requirements of different kinds of poultry.
  - Students will explain methods of maintaining poultry health and soundness.

- 010331-0203 Students will analyze the small animal care industry.
- Students will recognize the importance of the small animal industry.
  - Students will describe the proper care, feeding and handling of common small animals.
  - Students will define zoonosis and list common types.

#### **STANDARD**

**010331-03 Students will design a system to handle and dispose of animal waste.**

#### **OBJECTIVES**

- 010331-0301 Students will examine current animal waste regulations.
- 010331-0302 Students will describe proper techniques of applying wastes to field.
- 010331-0303 Students will plan and design a waste disposal system.

#### **STANDARD**

**010331-04 Students will apply the principles of genetics and breeding to livestock improvement.**

#### **OBJECTIVES**

- 010331-0401 Students will define genetic engineering.
- 010331-0402 Students will outline the embryo transfer process.
- 010331-0403 Students will describe recombinant DNA transfer.

#### **STANDARD**

**010331-05 Students will examine anatomy and physiology in livestock species.**

#### **OBJECTIVES**

- 010331-0501 Students will be able to identify the external anatomy of each species of livestock.
- 010331-0502 Students will be able to identify parts of the excretory, nervous system and reproductive system on species of livestock.
- 010331-0503 Students will be able to identify the epithelial, connective, and muscular tissue on species of livestock.

**STANDARD**

**010331-06 Students will demonstrate an understanding of range resources and management.**

**OBJECTIVES**

010331-0601 Students will evaluate range management systems, economics, and improvement techniques.

010331-0602 Students will determine livestock and wildlife use on rangeland.

010331-0603 Students will describe range management practices related to plant growth and development.

010331-0604 Students will establish a range transect and use it to evaluate a specific location.

**STANDARD**

**010331-07 Students will manage plant pests - weeds, diseases, and insects.**

**OBJECTIVES**

010331-0701 Students will identify plant pests, diseases and their causes.

010331-0702 Students will identify and select an appropriate control for each major type of pest.

010331-0703 Students will describe the principles of pest management.

010331-0704 Students will prepare plant and soil samples for analysis.

010331-0705 Students will understand the importance of pesticide safety.

**STANDARD**

**010331-08 Students will integrate principles of biotechnology into plant science.**

**OBJECTIVES**

010331-0801 Students will design and conduct experiments to support known principles of genetics.

010331-0802 Students will explain basic plant physiology and reproduction as it relates to biotechnology.

010331-0803 Students will explain the regulatory aspects of biotechnology.

010331-0804 Students will discuss ethical issues in modern biotechnology.

**STANDARD**

**010331-09 Students will understand agricultural business principles.**

**OBJECTIVES**

010331-0901 Students will understand taxes.

- Students will understand the purpose of different types of taxes.
- Students will understand the importance of tax planning and record keeping.
- Students will determine the tax obligations for an agribusiness.

- 010331-0902 Students will understand law and insurance as it relates to agriculture.
- Students will understand the insurance needs and major points of law applicable to the agriculture sector.
  - Students will identify and describe the major legal and insurance concerns of an agribusiness.
- 010331-0903 Students will compare and contrast different types of ownership.
- Students will understand the different types of production agriculture and agribusiness ownership.
  - Students will analyze and compare the advantages and disadvantages of cooperative, corporate, single proprietorship, and partnership as the basic ownership structures.
- 010331-0904 Students will demonstrate an understanding of agriculture sales.
- Students will understand the principles and techniques involved in marketing and selling agricultural products and services.
  - Students will demonstrate agriculture sales skills in a role-playing situation.
- 010331-0905 Students will describe international trade.
- Students will understand the importance of international trade to the agriculture industry.
  - Students will understand the process of marketing agriculture products and services outside of the United States.
  - Students will explain the interrelationship of governmental, economic, and cultural factors affecting international trade.
- 010331-0906 Students will understand business ethics.
- Students will understand management and employee ethics in agribusiness activities.
  - Students will analyze and interpret questions of ethics.